

# Developing Lean Thinking at JMC



***JMC - On the Line***



# **Lean Focuses on**

## ***Creating***

### **VALUE**

## ***for the customer by eliminating***

### **WASTE.**



# What is Lean Thinking?

- ✓ *Application of an integrated set of productivity tools to do more with less effort, equipment, time, space.*
- ✓ *Reviewing processes from its beginning to end, which is final delivery to the customer.*
- ✓ *Constant customer focus - customer defines value, customer sets pace of production.*



# Value

## ✓ value-adding:

- Any activity that adds value to the end product or service in the eyes of the customer

## ✓ non-value adding:

- Any activity that consumes resources but adds no value to the end product or service



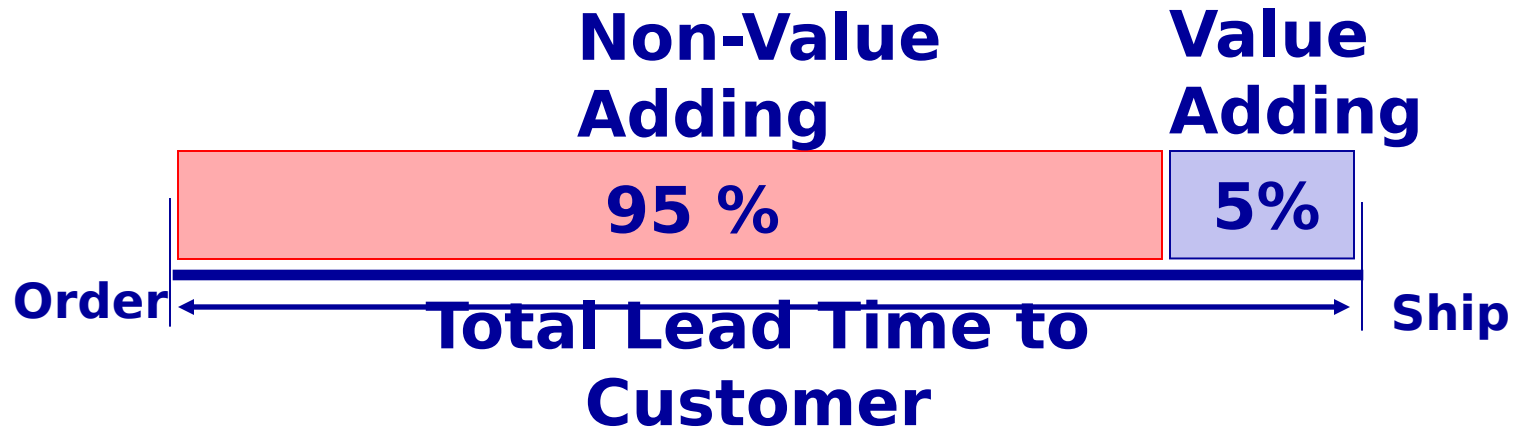
# Waste (Muda)

## Seven Types of Muda (Taiichi Ohno of Toyota)

- 1. Overproduction** – Excessive quantities and/or speed.
- 2. Correction** – Inspection and repair.
- 3. Movement** – Of material/information, for no added value.
- 4. Processing** – Effort which adds no value.
- 5. Inventory** – Supply in excess of requirements.
- 6. Waiting** – Human or machine idle time.
- 7. Motion** – Human or machine movement with no added value.



# Value Stream Analysis



most improvement efforts  
focus on doing the VA  
faster – or automating /  
streamlining the NVA as  
opposed to removing the  
NVA



# Current State Value Stream Map (VSM)



**See the waste in the process and understand how information and material really flows through the value stream.**



# Analyze the Current State VSM

- ✓ Where is the flow “broken”?
  - **Piles, stops, and back-ups**
- ✓ Where are the people?
  - **How many are adding value? How many aren't?**
- ✓ How does customer communicate requirements (demand, schedule, configuration)?
- ✓ How does the shop floor get support (tools, parts, consumables, etc.)?
- ✓ Can an outsider figure out what is going on in the work area in 5 seconds?





# Create the Future State VSM

## Value Stream Map

### BUSINESS CASE:

To become competitive and to keep the depot open

### VALUE STATEMENT:

Teardown, assess, repair, and reassemble C-5 Aircraft to airworthiness condition

### KEY REQUIREMENTS (MUSTS):

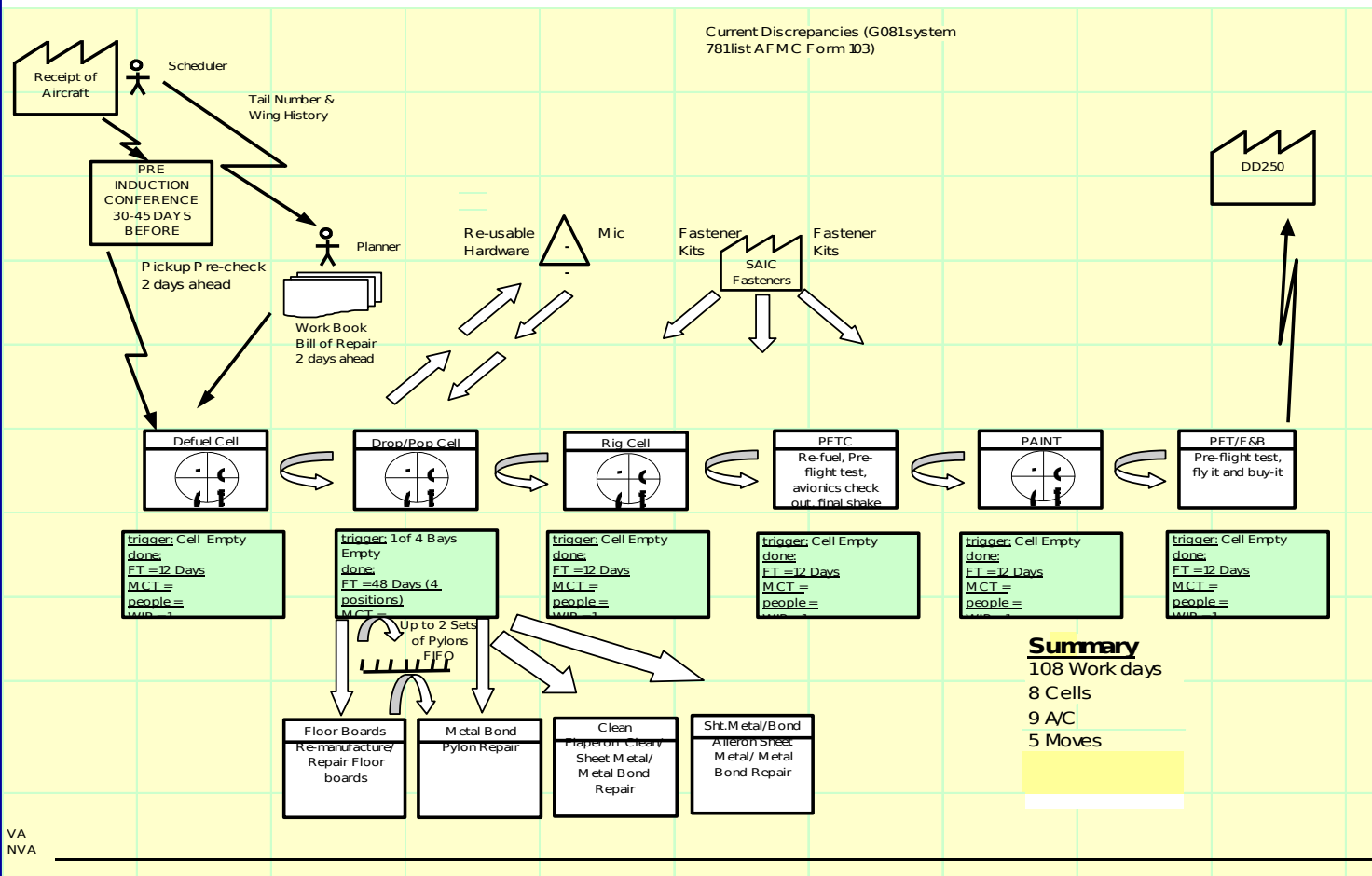
Quality, Delivery, Cost, Safety, Morale Configuration

### MEASUREMENTS:

Quality (QDR), Cost, and on-time delivery

### IDEAL GOAL:

ON-DEMAND, FREE, ONE-STOP SERVICE





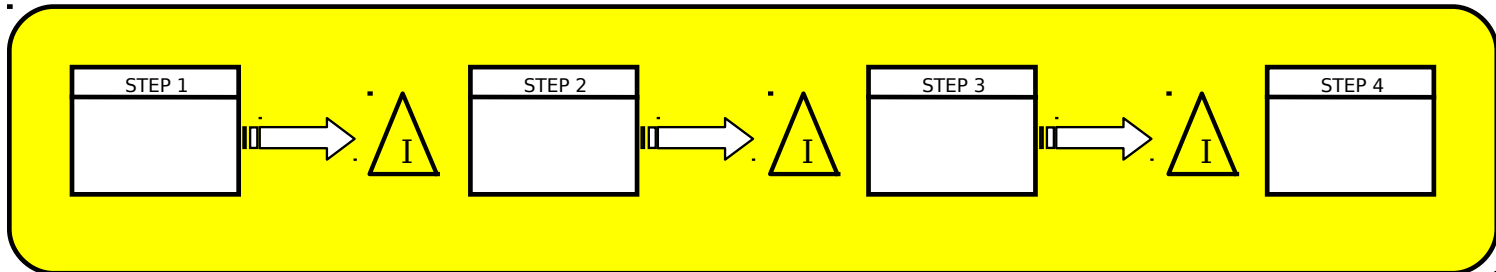
# **Rapid Improvement Events (Kaizen)**

- ✓ **Kaizen events = modest scope**
- ✓ **Regular and frequent**
- ✓ **Clear focus/goals**
- ✓ **Choose topics during value stream analysis**
- ✓ **Right team (at least 1/3 from area affected)**
- ✓ **3-5 days without interruption**
- ✓ **Accountable for results**

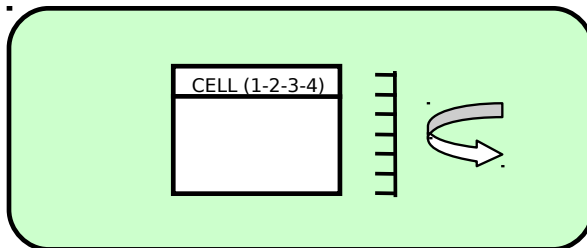


# Creating One-Piece Flow Cells

## BATCH FLOW PROCESS



## One-PIECE FLOW CELL

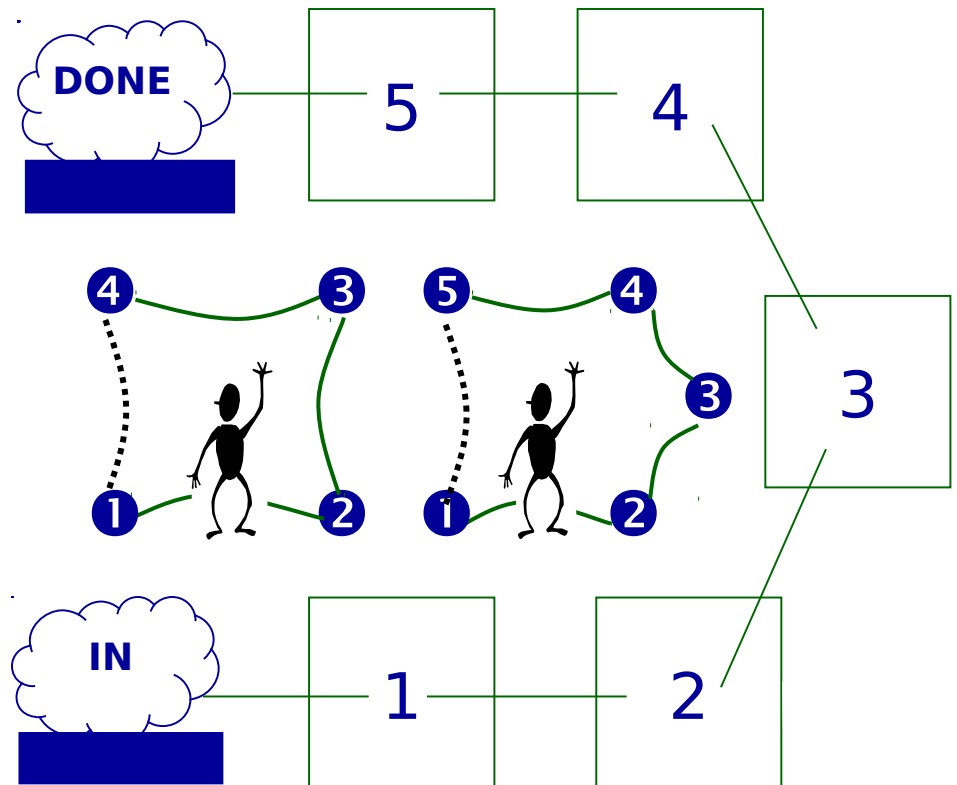


***value adding steps in order - no stops, piles, or backups, eliminate transportation and queue time***



# One-Piece Flow Cell (continued)

- ✓ **Natural groups of parts or steps**
- ✓ **One operator could run the cell**
- ✓ **Multi-skilled people**
- ✓ **Layout based on flow steps**
- ✓ **Pull system replenished**





# Is Lean for real? *Yes!!*

- ✓ **Major Industry push/initial Gvt. efforts**
- ✓ **Significant benefits**



# MCAAP - Pilot Lean project: B455 Cement Bomb Line

## *Projected Results*

<u>Parameter</u>	<u>Before</u>	<u>After</u>	<u>Improvement</u>
✓ Inventory(WIP)	36 pieces	12 pieces	50%
✓ Lead Time	159 min.	105 min.	34%
✓ Forklift Travel	4.4 miles	0.5 miles	89%
✓ Productivity	81 bombs	124 bombs	53%



# Lean Takes Root At Warner Robins Al

*“In the first cut we will average 30% reduction in costs and 30% reduction in flow days, and it’s proven true with every one (value stream) we’ve done so far”*

Major General (ret.) Dennis Haines  
WR-ALC/CC

Friday, November 16, 2001 - **MANUFACTURING NEWS**



# **Our Approach**

- ✓ **Deploy Value Creation Team with Lean Steering Committee (LSC) support**
- ✓ **Develop business case at McAlester then expand**
- ✓ **Pursue JMC/AMC funds for expert support/training**
- ✓ **Benchmark Gvt./Industry initiatives**





# **Why Lean Thinking at OSC?**

- ✓ **Army Transformation - Readiness**
- ✓ **Compelling results - cost, cycle time, quality**
- ✓ **Gen Kern's vision for a Lean AMC enterprise**



# Gen Kern's Lean Vision

*“To catapult AMC  
to the forefront of innovation and  
productivity in DoD,  
and to firmly establish the organic base  
as an  
essential component of future base  
strategies, and  
the provider of choice to Program  
Managers.”*